Opto-isolated input board - IP-2

Function.

This board allows up to eight digital input signals to be connected to the micro-computer system via opto-isolators. The input signals may be A.C. or D.C. at up to 100V.

Operation.

The input signal is used to turn on the LED of an opto-isolator via a IN4004 diode to provide for use with A.C. and a current limiting resistor. The limiting resistors shown on the circuit diagram are 2K2 (R1) and permit input voltages in the range 12-24V to be used. A current of 5-10 mA is required to turn the LED on and the resistors R1 may be changed to provide this current at other voltages. A second LED (D2) is included in the input circuit to give an indication that the input current is passing.

The output signal from the opto-isolator is passed through a simple RC filter (R3,C1) to improve operation with A.C. inputs and to provide some noise immunity. When extremely fast response is required, C1 may be omitted. After filtering the signal is passed via a schmitt inverter (4093) to the data bus buffer (81Ls95). This buffer is enabled when both the read strobe (NRDS) and address select line (pin 1) are low. The address select signal is generated using 8136 bus comparators to compare the address bus with the address set up using the DIL switches DS1/2. When the two addresses are the same, the open circuit collector outputs of the 8136's go high and after inversion by part of IC4 this gives the address select signal.

Address selection.

The DIL switches pull the text inputs of the bus comparators down to ground when closed. When open, the test input is pulled high. The address decoding may be used with a variety of address buses:-

1. 16 bit address buses.

Fit L8-L1Ø in the long positions to wire in addresses A8-1Ø. Wire L7 in the position L7-G.

2. 12 bit and page select.

Fit L8-L1Ø in the long positions and also L7 in the long position to bring the page select into the bus comparators. Pull address input A12-A15 high and set the corresponding DIL switches high.

3. Z8Ø I/O mapped.

Omit IC8. Wire L8-L10 to G and close the corresponding DIL switch positions. Wire L7 in the long position to bring I/O Request (IORQ) into the bus comparators.

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Drn. G.S.D

Date 15/10/79

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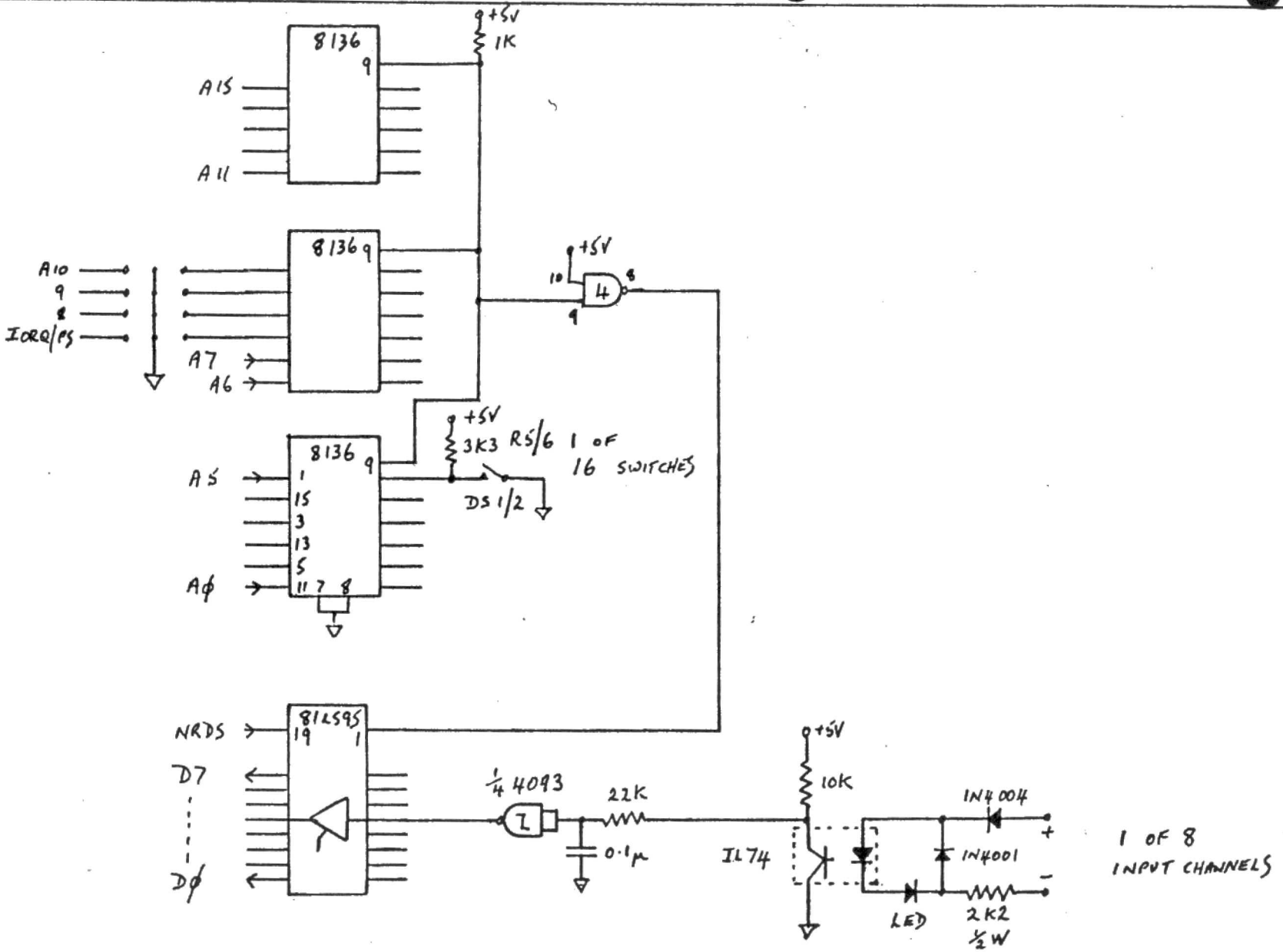
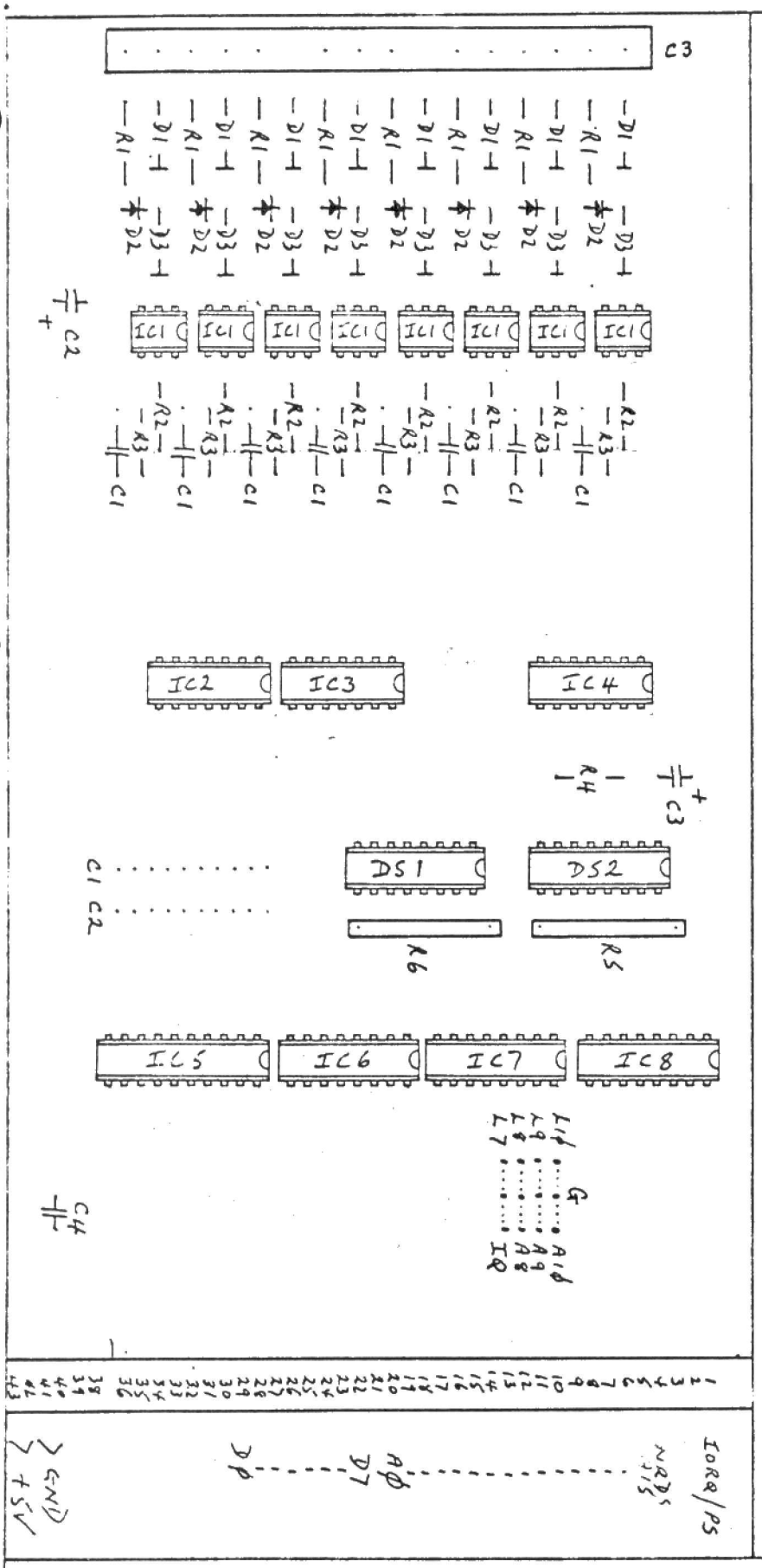
IP.2





COMPONENTS

R1	2K2 ¼W	(8 OFF)
2	10K	(8 OFF)
3	22K	(8 OFF)
4	1K	
5	S.I.L. RES PACK 3K3	
6	"	
C1	0·1µ	(8 OFF)
C2	100µ, 10V	
3	"	
4	0·1µ DISC	
D1	1N4004	(8 OFF)
2	0·2" LED	(8 OFF)
3	1N4003	(8 OFF)
IC1	IL-74	(8 OFF)
2	4093	
3	4093	
4	74LS00	
5	81LS95	
6	8136	
7	8136	
8	8136	
DS1	8 WAY DIL SWITCH	
2	"	
C3	CABLE CONNECTORS (RS 423-762)	

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